

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

2009_1799

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Typed or printed name _____

Application Number

10/561,151

Filed

September 25, 2006

First Named Inventor

Keijo J. KINNARI et al.

Art Unit

3742

Examiner

Sang Yeop Paik

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)☒ attorney or agent of record.
Registration number 40,268☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

/Michael S. Huppert/
2011.01.14 15:59:27 -05'00'

Signature

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Typed or printed name

202-721-8200

Telephone number

January 14, 2011

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Attorney Docket No. 2009_1799
Keijo J. KINNARI et al.	:	Confirmation No. 9109
Serial No. 10/561,151	:	Group Art Unit 3742
Filed September 25, 2006	:	Examiner Sang Yeop Paik
METHOD AND SYSTEM FOR DIRECT ELECTRIC HEATING OF A PIPELINE	:	Mail Stop: AF

ARGUMENTS IN SUPPORT OF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

It is submitted that the rejections of record are clearly not proper due to clear factual errors in the rejection.

On pages 2-3 of the Final Office Action, claims 2, 5, 8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holen (U.S. Patent Application Publication 2002/0028070) in view of Firmin (U.S. Patent Application Publication 2004/0253734) or Agee et al. (U.S. Patent Application Publication 2003/0178195). Also, claim 12 is rejected as being unpatentable over Holen in view of Firmin or Agee and further in view of Ness et al. (U.S. Patent No. 6,328,523).

The present invention, as defined in independent claims 5 and 10, is directed to a method and system for removing plugs of at least ice from a subsea pipeline.

The Holen reference discloses a system for heating a thermally insulated pipeline in order to prevent the formation of hydrate plugs or wax deposits when crude oil transportation is

stopped. However, even if a person of ordinary skill in the art had considered the Holen system when attempting to solve the problem of removing ice plugs from subsea pipelines, the result would be a solution in which the pipeline is heated to a temperature sufficient for melting both ice plugs and hydrate plugs. There is no disclosure or suggestion in Holen that would have led a person of ordinary skill in the art to modify its teachings so as to limit the heating of the pipeline to below the melting point of a hydrate, as specifically required in claims 5 and 10.

Further, Holen discloses that the heating of a pipeline will successfully prevent the formation of hydrate plugs. Thus, a person of ordinary skill in the art would not have considered limiting the degree of heating as this would not achieve the stated purpose of the Holen system, i.e. preventing the formation of hydrate plugs. Furthermore, in the Holen system, there would have been no reason for the subsequent application of a second plug counteracting procedure because such a procedure would be unnecessary as plug formation is effectively prevented. Thus, a person of ordinary skill in the art would not have considered alternative solutions, such as those disclosed in Firmin and Agee, to prevent hydrate plug formation. Clearly, the Firmin and Agee solutions would have no application in the environment of Holen. Thus, it is clear that there would have been no reason to combine the heating solution of Holen with the alternative solutions disclosed in Firmin and Agee.

On page 3 of the Office Action, the Examiner states that:

“In view of Firmin or Agee, it would have been obvious to one of ordinary skill in the art to adapt Holen with a procedure the combination of, or in sequence of, heating and application of the chemical injection or depressurization to enhance the removing of a hydrate plug or ice in the pipeline to facilitate a more effective flow in the pipeline.”

Apparently the Examiner is suggesting that the addition of the Firmin or Agee procedures would “facilitate a more effective flow in the pipeline.” However, as discussed above, the Holen system successfully prevents the formation of hydrate plugs. Thus, additional procedures for

removing hydrate plugs would have no application in the Holen system. The Examiner's conclusion that additional procedures would "facilitate a more effective flow in the pipeline" is clearly factually incorrect.

Further, the present invention, as defined in claims 5 and 10, requires that the pipeline is only heated to a temperature sufficient to melt any ice formations, thereby enabling the application of a second plug counteracting procedure (e.g. such as chemical injection or depressurization) which would not have been possible when ice plugs are present. By requiring only limited heating of a subsea pipeline, the present invention provides that both ice and hydrate plugs can be removed without the expense and implementation difficulties involved in heating a pipeline to a temperature sufficient to melt both hydrate and ice plugs.

In particular, claim 5 requires, *inter alia*, the step of "directly heating the pipeline electrically to a temperature above the melting point of ice, but below the melting point of a hydrate." The Examiner dismisses this limitation as a "matter of routine experimentation" (Office Action, page 4). However, in the present invention, the heating of the pipeline is limited for a particular reason which is not applicable in the prior art system. Furthermore, it is noted that Holen explicitly requires heating the pipeline to a temperature that is sufficient to prevent the formation of hydrate plugs or wax deposits. Thus, it is essential in the Holen system that the temperature be above the melting point of a hydrate. Clearly the Holen reference does not disclose or suggest limiting the temperature as required in claim 5.

In view of the above, it is clear that any modification of the Holen method to lower the temperature would destroy the intended purpose of the Holen heating system. If a proposed modification would render the prior art invention unsatisfactory for its intended purpose, then

there is no reason to make the proposed modification (MPEP 2145.01V.). Clearly, there is no suggestion or reason to modify the Holen method as proposed by the Examiner.

Response to the Examiner's "Response to Arguments"

In the Final Office Action, the Examiner argues that Holen merely discloses that heating is provided so as to keep the viscosity of the oil in the pipeline low when transport of oil is stopped, such that the pipeline would only need to be heated to above the temperature required to melt ice. However, the Examiner is incorrect.

In order to keep the viscosity of the oil in the pipeline low, it is necessary to heat the pipeline to a temperature sufficient to prevent the formation of hydrate plugs and wax deposits (see Holen; paragraphs 0003, 0014 and 0015). Merely heating the pipeline to above the temperature required to melt ice will not be sufficient to prevent hydrate plugs and wax deposits from forming. In paragraph 0014, Holen states that "plugs and remaining cold crude oil in the section 6 will block new oil transportation because of its higher viscosity inspite of th thermal insulation of the metallic tube 1." Thus, any application of the Holen teachings would require heating the pipeline to a temperature above the melting point of a hydrate.

Further, there is no reason to modify the Holen system with a second plug counter-acting procedure. As discussed above, Holen discloses that the disclosed method prevents the formation of hydrate plugs or wax deposits (see paragraphs 0014 and 0015).

The inventions defined in claims 5 and 10 provide that a pipeline need only be heated to a temperature sufficient to melt ice formations, thereby enabling the application of a second plug counter-acting procedure that would not have otherwise been possible when ice plugs are present. In requiring only limited heating of a subsea pipeline, the present invention provides that

both ice and hydrate plugs can be removed without the expense and implementation difficulties involved in heating a pipeline to a temperature sufficient to melt both hydrate and ice plugs.

In view of the above, it is submitted that claims 5 and 10 are clearly allowable over Holen, Firmin and Agee references as applied by the Examiner.

Respectfully submitted,

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